

**WHAT IS CLAIMED IS:**

1. A method for transmitting error detection information for control information of a reverse traffic channel from a mobile station in a mobile communication system, said mobile station transmitting the control information of the reverse traffic channel over a control channel,

5 the method comprising the steps of:

generating control information of a reverse traffic channel in every time interval;

generating error detection information for error detection of at least one generated control information;

10 transmitting the generated error detection information and the control information in a predetermined time interval; and

transmitting the control information in a remaining time interval, other than said predetermined time interval.

2. The method according to claim 1, wherein said predetermined time interval is repeated at intervals of a predetermined period.

15 3. The method according to claim 1, wherein said predetermined time interval is arranged in a predetermined period to minimize interference caused by the error detection information.

4. The method according to claim 1, further comprising the step of:

encoding the generated error detection information together with the control information, and transmitting the encoded information over a control channel.

20 5. The method according to claim 1, further comprising the step of:

transmitting the generated error detection information over an error detection channel different from the control channel.

6. The method according to claim 5, wherein the generated error detection information is

transmitted over the error detection channel in a randomly arranged time interval.

7. The method according to claim 1, wherein the generated error detection information is transmitted in a time interval allocated to a group to which the mobile station belongs.

8. The method according to claim 1, wherein said step of generating the error detection  
5 information includes the steps of:

storing the control information of the reverse traffic channel;

determining if the current time is a time to generate the error detection information for the control information; and

generating error detection information for the stored control information if the current  
10 time is the time to generate the error detection information.

9. The method according to claim 8, wherein the stored control information includes at least one control information.

10. An apparatus for transmitting error detection information for control information of a reverse traffic channel from a mobile station in a mobile communication system, said mobile  
15 station transmitting the control information of the reverse traffic channel over a control channel, the apparatus comprising:

a control information generator for generating control information of a reverse traffic channel in every time interval;

an error detection information generator for generating error detection information for  
20 error detection of at least one generated control information; and

a controller for allowing the generated error detection information and the control information to be transmitted in a predetermined time interval, and allowing the control information to be transmitted in a remaining time interval, other than said predetermined time interval.

11. The apparatus according to claim 10, wherein said predetermined time interval is repeated at intervals of a predetermined period.

12. The apparatus according to claim 10, wherein said predetermined time interval is arranged in a predetermined period to minimize interference caused by the error detection  
5 information.

13. The apparatus according to claim 10, further comprising an encoder for encoding error detection information, generated in said predetermined time interval, together with the control information.

14. The apparatus according to claim 10, further comprising a sub-encoder for encoding  
10 the generated error detection information, separately from the control information.

15. The apparatus according to claim 14, wherein the controller allows the error detection information to be transmitted in a randomly arrange time interval.

16. The apparatus according to claim 10, wherein the controller allows the error detection information to be transmitted in a time interval allocated to a group to which the mobile station  
15 belongs.

17. A method for receiving error detection information for control information of a reverse traffic channel in a base station of a mobile communication system, said base station receiving the control information of the reverse traffic channel, the method comprising the steps of:

20 receiving the control information and error detection information for error detection of at least one control information in a predetermined time interval;

receiving the control information in a remaining time interval, other than said predetermined time interval; and

determining, based on the received error detection information, if an error exists in said at least one control information.

18. The method according to claim 17, wherein said predetermined time interval is repeated at intervals of a predetermined period.

5        19. The method according to claim 17, wherein said predetermined time interval is arranged in a predetermined period to minimize interference caused by the error detection information.

10       20. The method according to claim 17, wherein said step of receiving the control information and the error detection information includes the step of receiving the control information and the error detection information over an control channel.

21. The method according to claim 17, further comprising the step of receiving the error detection information over an error detection channel different from the control channel.

22. The method according to claim 21, wherein the error detection information is received over the error detection channel in a randomly arranged time interval.

15       23. The method according to claim 17, wherein the error detection information is received from a mobile terminal in a time interval allocated to a group to which the mobile terminal belongs.

20       24. The method according to claim 17, further comprising the step of decoding a received signal of a control channel in a predetermined time interval to obtain control information and error detection information.

25. The method according to claim 17, further comprising the step of adjusting a target

setpoint for outer loop power control, depending on the determination at said step of determining if the error exists in said at least one control information.

26. The method according to claim 17, further comprising the steps of decoding a received signal of a control channel in a remaining time interval, other than said predetermined time interval, to generate control information, and maintaining a target setpoint for outer loop power control.

27. An apparatus for receiving error detection information for control information of a reverse traffic channel in a base station of a mobile communication system, said base station receiving the control information of the reverse traffic channel, the apparatus comprising:

10 a first decoder for decoding control information and error detection information received in a predetermined time interval;

a second decoder for generating control information in a remaining time interval, other than said predetermined time interval; and

15 an error checker for determining, based on the decoded error detection information, whether an error exists in at least one control information.

28. The apparatus according to claim 27, further comprising a target setpoint controller for adjusting a target setpoint for outer loop power control, depending on the determination as to whether the error exists in said at least one control information.

29. The apparatus according to claim 27, further comprising a controller for determining 20 if the current time is in the predetermined time interval or the remaining time interval, and selecting and enabling one of the first and second decoders, depending on the determination as to whether the current time is in the predetermined time interval or the remaining time interval.

30. The apparatus according to claim 27, wherein said predetermined time interval is repeated at intervals of a predetermined period.

31. An apparatus for receiving error detection information for control information of a reverse traffic channel in a base station of a mobile communication system, said base station receiving the control information of the reverse traffic channel, the apparatus comprising:

5 a first decoder for decoding control information received over a control channel in every time interval;

a second decoder for decoding error detection information received over an error detection channel in a predetermined time interval, said error detection information being used for error detection of at least one control information; and

10 an error checker for determining, based on the error detection information received over the error detection channel, if an error exists in said at least one control information.

32. The apparatus according to claim 31, wherein the second decoder decodes error detection information received over the error detection channel in a randomly arranged time interval.

15 33. The apparatus according to claim 31, wherein the second decoder decodes error detection information received from a mobile terminal in a time interval allocated to the mobile terminal.

34. The apparatus according to claim 31, further comprising a target setpoint controller for adjusting a target setpoint for outer loop power control, depending on the determination as to whether the error exists in said at least one control information.

20 35. A method for transmitting error detection information for control information of a reverse traffic channel from a mobile station in a mobile communication system, said mobile station transmitting the control information of the reverse traffic channel over a control channel, the method comprising the steps of:

generating control information of a reverse traffic channel in every time interval;

generating error detection information for use in determining if an error exists in at least one selected control information;

dividing the generated error detection information in a predetermined time interval, and transmitting the divided error detection information and the generated control information.

5           36. The method according to claim 35, further comprising the step of determining if the current time is a time to generate error detection information for said at least one control information.

10           37. The method according to claim 35, further comprising the step of encoding error detection information and control information and transmitting the encoded information over a control channel.

          38. The method according to claim 35, wherein the control information is transmitted over a control channel, and the error detection information is transmitted over an error detection channel.

15           39. An apparatus for transmitting error detection information for control information of a reverse traffic channel from a mobile station in a mobile communication system, said mobile station transmitting the control information of the reverse traffic channel over a control channel, the apparatus comprising:

          a control information storage unit for generating and storing control information of a reverse traffic channel in every time interval;

20           an error detection information storage unit for storing error detection information for error detection of at least one control information; and

          a controller for allowing the error detection information to be divided in a predetermined time interval, and allowing the divided error detection information and the generated control information to be transmitted.

- 40. The apparatus according to claim 39, wherein the controller allows the error detection information and the control information to be encoded and transmitted over a control channel.

41. The apparatus according to claim 39, wherein the control information is transmitted over a control channel, and the error detection information is transmitted over an error detection  
5 channel.

42. A method for receiving error detection information for control information of a reverse traffic channel in a base station of a mobile communication system, said base station receiving the control information of the reverse traffic channel, the method comprising the steps of:

10 receiving control information of a reverse traffic channel in every time interval;  
receiving error detection information for error detection of at least one received control information, said error detection information being received while being divided in a predetermined time interval; and  
determining whether an error exists in said at least one control information, when all of  
15 the divided error detection information has been received.

43. The method according to claim 42, further comprising the step of receiving error detection information and control information over an encoded control channel.

44. The method according to claim 42, wherein the control information is received over a control channel, and the error detection information is received over an error detection channel.

20 45. The method according to claim 42, further comprising the step of adjusting a target setpoint for outer loop power control, depending on the determination as to whether the error exists in said at least one control information.

46. An apparatus for receiving error detection information for control information of a



reverse traffic channel in a base station of a mobile communication system, said base station receiving the control information of the reverse traffic channel, the apparatus comprising:

a control information storage unit for receiving and storing control information of a reverse traffic channel in every time interval;

5 an error detection information storage unit for storing error detection information for error detection of at least one received control information, said error detection information being received while being divided in a predetermined time interval; and

an error detection determiner for determining whether an error exists in said at least one control information, when all of the divided error detection information has been received.

10 47. The apparatus according to claim 46, wherein the error detection information and the control information is received over an encoded control channel.

48. The apparatus according to claim 46, wherein the control information is received over a control channel, and the error detection information is received over an error detection channel.

15 49. The method according to claim 46, further comprising a target setpoint for adjusting a target setpoint for outer loop power control, depending on the determination as to whether the error exists in said at least one control information.

20 50. The method according to claim 5, wherein the generated error detection information is transmitted in a time interval allocated to a group to which the mobile station belongs.

51. The apparatus according to claim 14, wherein the controller allows the error detection information to be transmitted in a time interval allocated to a group to which the mobile station belongs.

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52. The method according to claim 21, wherein the error detection information is received from a mobile terminal in a time interval allocated to a group to which the mobile terminal belongs.